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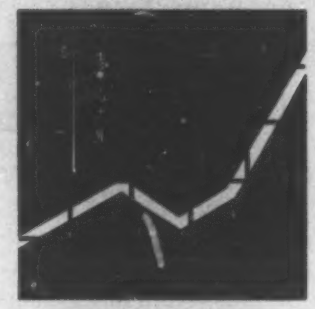

Colorado Business Review

BUSINESS RESEARCH DIVISION • GRADUATE SCHOOL OF BUSINESS ADMINISTRATION • UNIVERSITY OF COLORADO

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Volume LVI, Number 10, October 1983

So You Want to Attract High-Tech Firms

PART I

Clark E. Chastain

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What city, metropolitan area, or industrial state does not want to attract high-tech firms today? Very recently 57 cities in 27 states competed to become home for Microelectronics and Computer Technology Corporation, a joint venture of 12 major companies–illustrating the high desirability of such firms as well as the intense competition to attract them.

Perhaps surprisingly, the potential hosts for high-technology firms do not have to be large. The small rural city of Columbus, Indiana, with a population of only 35,000, promotes regular missions to Japan and Europe recruiting small high-technology firms to locate there. However, resources and attracting features are not equally divided among states and cities, and not all metropolitan areas can expect to be as successful as, for example, Boston or Santa Clara. Nevertheless, all potential hosts can attract a significant number of these ventures and improve the area's economy.

This article explains what is meant by high-technology industries and products and why mayors and governors want high-technology firms to locate in their cities and states, and analyzes the needs of high-tech organizations as the basis for developing a comprehensive integrated plan for attracting these firms.

WHICH INDUSTRIES AND PRODUCTS ARE PROPERLY LABELED HIGH TECHNOLOGY?

Agreement is lacking on which industries should be considered high-tech industries. According to *Business Week*,[1] drugs, electronics, information, and telecommunications are the major high-technology industries. Electronics include silicon chips and simiconductors; information processing encompasses computer of all sizes, from the largest commercial computers to personal and office automation products. Within the telecommunications industry are not only telephones and access lines but also new services for moving computer data and other business information services and products for enabling dissimilar brands of computers to communicate, and new private branch exchange (PBX) telephone systems for offices. Involved in some or all phases of telecommunications are American Telephone and Telegraph, International Business Machines, Tymnet, GTE, Telenet, and United Telecommunications.

Yoshio Yamashita, Director of the Okasan Economic Research Institute in Japan, uses a different categorization for high technology enterprises. He identifies (1) eletronics and semiconductors, (2) biotechnology, (3) new materials, and (4) new energies. Within electronics are microprocessors, the best growth area in Japan; computers, especially personal and cognitive or fifth-generation computers; word processors; office automation equipment; telecommunications; and peripherals. Biotechnology encompasses pharmaceuticals, fermentation technology, and applications to food production. New materials refers to substitute materials such as carbon fiber, fine ceramics and an alternative semiconductor material for silicon. An example of new energies would be amorphous solar cells and coal liquefaction processes.

To the list above we must add lasers, fiber optics, genetic engineering, and the developing robotics industry. Japan now leads in robotics, today using perhaps 36,000 robots. The U.S. follows with about 6,500.

Further high-technology developments can be found in medical analyzers and diagnostic and treatment procedures such as scanning. In addition, some of the work in nuclear and aerospace research is certainly advanced new technology. Recent illustrations include the production of low-speed bearings for fuel-handling mechanisms that operate in nuclear reactors, cryogenic bearings that operate in the liquid oxygen or hydrogen inside the rocket engines of the space shuttle, and stainless steel spheres that meter the fuel in automotive injectors.

Often, firms which are advancing technology do not fit neatly into a particular industry group. The firm may be in an industry whose primary operations are manufacturing or something other than upgrading technology. For example, the aerospace, military weapons and missiles industries, as well as the National Aeronautics and Space Administration, are advancing and applying sophisticated technologies. So are chemical firms which develop new crop protectants for agriculture. Another difficulty arises in the attempt to distinguish between a high-tech firm and the injection of advanced technology into a basic industry, as for example when a chemical firm develops new crop protectants for agriculture; the chemical industry is elevating high-technology and injecting it into another basic industry.

Still, it is possible to list the general attributes of high technology: it is science-oriented or science-based; it rapidly advances products and/or processes; it is complex; it requires a high level of human skills to understand and operate; it changes the way of doing things or operations; and it makes significant changes in the machinery, equipment or assets used for production.

WHY DO MAYORS, GOVERNORS, AND OTHERS WANT HIGH-TECH FIRMS?

The desire to attract high-tech operations arises from the numerous benefits which accrue to the presence of high-tech firms in an area. These include (1) high profitability of these firms, (2) increased jobs and spending resulting from the high-tech firms' operations, (3) the tendency of these firms to serve as a nucleus for further growth, (4) the firms' favorable influence on education, and (5) a number of miscellaneous reasons. We will examine these benefits in detail.

High Profitability. High-technology firms not only usually enjoy high earnings but often are more recession-proof than basic manufacturing. The profitability factor is

[1] "Industry Outlook," *Business Week*, January 17, 1983, pp. 57-91.

well illustrated by contrasting the expected annual growth rates for five years in profits for four major high-tech industries with Standard and Poor 400 Companies:[2]

Industry	Expected Annual Growth Rate
Drugs	8.5%
Electronics	13.5
Information	9.5
Telecommunications	11.0
S and P 400	8.5

The expected profit rates for high-tech industries are also usually higher than those for other industries over the next five years.

High-growth, high-technology firms may also be recession-proof. Although the electronics and information companies located in Silicon Valley have experienced some decline in sales and income because of the recent recession and Japanese competition, their decline was far less than that of basic manufacturing in 1981-82. Today, the progress of the economic recovery indicates they will do far better than the basic industries. The 700 computer-related companies located near Boston provide additional examples of high-tech firms' general immunity to recession. They, along with the service industries (hospitals, colleges, finance, and insurance companies), have sustained a robust Greater Boston economy during the past year. Unemployment has stayed at the surprisingly low rate of 5.4% (compared with a national unadjusted rate of 10.4%). Defense contractors such as Raytheon Company, maker of Patriot, Hawk, Sparrow, and Sidewinder missiles, are growing strongly and further account for a vastly improved economy.

Increased Jobs and Spending. High-tech firms often produce an impressive magnitude of jobs. In 1981, high-technology industries in Massachusetts had sales of $19.5 billion and employed 250,000 people, one-third of the state's manufacturing labor force.[3] Similar enterprises in the Silicon Valley sold over $10 billion of products and employed 161,000 people. In just five years, 1975-80, electronics-related jobs soared 93% in the Santa Clara area.

The location of one additional firm may add significantly to employment and spending in the area. For instance, Microelectronics and Computer Technology Corporation (MCC), which chose to locate in Austin, Texas, expects to employ 400 engineers in professional, high-salaried jobs. Often there is a multiplier effect; one research job, for example, will support one and one-half service jobs, and in this case it seems reasonable to estimate that this one high-tech firm will add 1,000 positions to the Austin economy. Further, MCC will spend up to $100 million per year on research and development, much of it aiding the greater Austin area.

High-technology Concerns Often Form a Nucleus. Because of their prestige and their use of highly trained engineers and computer specialists, which are needed by other companies applying new research results, and because of a common strong reliance on higher education and research facilities, high-tech companies are likely to locate near each other. Also, there is a strong tendency for high-tech firms to spawn numerous new high-technology entrepreneurs and alumni, many of whom remain close by. The impact can produce a sort of chain reaction, resulting in many other new firms—as Boston and the California area from San Francisco to San Jose happily discovered.

The nucleus effect is illustrated by the events in Silicon Valley, where in 1955 William Shockley, co-inventor of the transistor, founded his semiconductor laboratory. The laboratory became a central point for further concentration and expansion; Robert Noyce, with seven other Shockley men, left this central cell in 1957 to form Fairchild. In 1959, Noyce and Jack Kilby at Texas Instruments invented the silicon chip—the small piece of silicon that is a complex semiconductor device, or integrated circuit, and a marvel of the world. Fairchild in turn served as the embryo for the Valley's top three firms: National Semiconductor (1967), Noyce's Intel (1968), and Advanced Micro Devices (1969). This nucleus has grown today to include more than 80 chip manufacturers which control 20% of the $16 billion world semiconductor market.[4]

The instruction provided by the example is clear: states which wish to catch up in high-technology need to foster this nucleus effect to improve cooperation among firms and to expand their high-technology industry.

Strong Positive Interaction with Education. No other industries interact so strongly and pervasively with education as do high-tech industries. High-tech firms and education make a formidable spearhead for advancing industry and culture, and most important to a high-tech company is location near universities that have graduate-level technical programs related to their areas of expertise. Microelectronics and Computer Technology Corporation, has as its mission the development of advances in semiconductors and computer products, and seeks as support established graduate electrical engineering and computer science programs. The company not only wants to hire graduates from these programs who will accept entrance level professional salaries; it also needs technical assistance and consulting from university experts who have developed procedures for getting research findings from university laboratories to private industry. The company rejected a location in Minnesota because the university in question had not already established the necessary training and chose instead Austin, Texas where The University of Texas and Texas A & M agreed to support it with low cost laboratory space.

The attractiveness of educational facilities in the Boston area is evident. Digital Equipment Corporation, Wang Laboratories, Prime Computer, Inc. and others can recruit employees from the 250,000 students and get university services from 65 colleges and universities. One measure of the area universities' involvement in research, which provide jobs for 90,000 employees, is their responsibility for 1,100 contracts valued at $150 million for basic research under the Pentagon's naval research detachment.

In some states, universities, research institutes and high technology are making progress in joint comprehensive programs. Computer companies in the Detroit-Ann Arbor

[2] "Industry Outlook," *op. cit.*, pp. 57-91.

[3] David Brophy, "A Matter of Money," *Dividend*, Graduate School of Business, University of Michigan, Fall Quarter 1982, pp. 13-14, 16, 21.

[4] For two excellent articles see Allen A. Boraiko, "Electronic Mini-Marvel that is Changing Your Life: The Chip," and Moira Johnston, "High Tech, High Risk and High Life in Silicon Valley," *National Geographic*, October 1982, Vol. 162, No. 4, pp. 421-477.

area enjoy this kind of support. Wayne State University has just funded a metropolitan high-technology center that provides research firms with space, computer, laboratory, engineering, research, and consulting services. The recently formed Industrial Technology Institute near Ann Arbor will add to the network, and the University of Michigan and Michigan State University further augment the program with their vast resources.

Once established, high-technology firms support growth and advancement in educational institutions. Their employees and dependents attend courses, both graduate and undergraduate, and research firms affect education in other ways. For example, executives have set up the Massachusetts High Technology Council in Boston and encourage each member to donate 2% of its annual research and development budget to higher education.

Miscellaneous Factors. Numerous other reasons exist for seeking to attract high-tech firms to an area. High-technology enterprises add to communities' middle and upper-middle class residents, and employees help to absorb the growing tax burdens. Moreover, a metropolitan area may gain significant stature and prestige by attracting well known concerns. In addition, the prosperity of many states and metropolitan areas is presently threatened by Japanese, European and other foreign competition, and high-technology provides an avenue for successfully meeting this challenge. The U.S. has consistently advanced sophisticated technology at a faster rate than other nations. Finally, the high-tech company usually maintains a clean environment–although it must be conceded that pioneers in the Silicon Valley polluted the environment, contributed to congestion, and in part caused housing and labor costs to soar.

WHAT DO HIGH-TECH FIRMS NEED AND WANT?

Awareness of the conditions and facilities desired by prospective high-tech residents will obviously help in luring them. As has already been pointed out, high-tech companies want appropriate graduate programs and research capabilities among the faculties. Other important factors include skilled labor, a favorable business climate, ready availability of living facilities, and land for expansion at reasonable costs. Additionally important is easy access by surface transportation, including interstate highways, and by air. Atlanta, one of the final four contenders for MCC, ranked high on a number of these variables with its low cost of living, low operating costs for business and its giant hub airport facilities.

Obviously there are variations in the resources and favorable features available in a given area. Emerging shortages of skilled labor and high living costs caused the Joint Economic Committee on Technology to predict that high-technology industries in the East and West will suffer. By contrast, the Midwest, with large numbers of skilled employees, vast industry and transportation infrastructure, is expected to lead the way in future development of advanced technology. Moreover, the aggressiveness with which a state or urban region pursues the high-tech firms can mean the critical difference in success or failure in attracting them. The four states–California, Massachusetts, New York, and North Carolina–that most aggressively pursue high-technology companies today attract far more than other states. Austin, Texas, has responded quickly to inquiries about its program and in following up on leads of companies which are interested in locating there–positive factors in attracting firms. Austin attracts about 10 new research or high-tech firms each year by touting its many attractive features: highly prized living conditions, the nation's lowest living costs, substantial research and personnel resources, a world-recognized university, moderate property and sales taxes and no state or city income taxes, no history of strikes or labor friction, no severe racial tension, and no smog or pollution.

John H. Gray, Manager of the Economic Development Department of the Austin Chamber of Commerce, pinpoints the tradeoffs that are sometimes necessary. He states that where a "city's industrial and quality-of-life attractiveness" are significant, which is true in Austin, the city does not have to offer financial incentives.[5] "Financial incentives for MCC were a unique exception and were funded by the statewide business community, not locally. An increased amount of financial incentives proportional to a city's lesser degree of attractiveness is required."

Mr. Gray, a veteran official of Austin's Chamber, summarizes four primary reasons why Austin has successfully attracted high-tech firms year by year since around 1960:[6]

1. World-class university, particularly excellent in engineering, computer science, and business programs (undergraduate, graduate, and research).
2. Outstanding and universally-prized environment and quality of life.
3. Good pro-business government climate (state and local)–moderate property, sales, and other taxes, no state or city income tax, right-to-work law, etc.
4. Quality work force–high work ethic, high productivity, non-union attitude.

The major features which discourage new firms of any type from locating in a state are high taxes, aggressive unions, and high energy costs. In addition bureaucratic and paperwork barriers detract. Texas requires only nine forms and ranks number one in terms of simplicity and lack of bureaucratic filing requirements.[7]

Tax abatements are commonly given as financial incentives to new firms, as by Columbus, Indiana and the Economic Development Corporation of San Diego. In Massachusetts, a lobbying group called the Massachusetts High-Technology Council raised $246,000 and hired a New York advertising agency to convince Massachusetts voters that their property tax was too high and should be controlled; the member firms of the council wanted lower property taxes to attract engineers. Another example of financial incentive is provided by the "quality discounts" recently offered by San Diego builders to employees of new high-tech firms who bought houses in the same development. Austin's local lending institutions offer below-market mortgage loans.

To be continued, Part II will appear in the November issue.

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[5] Personal communication and survey, returned June 13, 1983.
[6] *Ibid.*
[7] Lawless Barrientos, quoted in "New Businesses in Some States Have Less Red Tape to Fight," *The Wall Street Journal*, June 7, 1983, p. 35.

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COLORADO BUSINESS INDICATORS
(Figures in Thousands Unless Otherwise Indicated)

	June 1983	May 1983	June 1982	Percent Change June 1983 from May 1983	Percent Change June 1983 from June 1982
Total Civilian Labor Force (by place of residence)[a]	1,678.8	1,644.5	1,602.8	2.1	4.7
Unemployment	122.1	129.0	125.1	- 5.4	- 2.4
Unemployment Rate (percent)	7.3	7.8	7.8	—	—
Employment	1,556.7	1,515.5	1,477.7	2.7	5.4
Nonagricultural Wage and Salary	1,509.7	1,477.0	1,430.1	2.2	5.6
Agricultural	47.0	38.5	47.6	22.1	- 1.3
Total Nonagricultural Wage and Salary Employment (by place of work)[a]	1,343.3	1,325.8	1,320.4	1.3	1.7
Mining	39.3	38.6	44.3	1.8	-11.3
Metallic Minerals	6.0	5.9	9.4	1.7	- 36.2
Bituminous Coal, Lignite, and Nonmetallic	4.6	4.5	5.7	2.2	-19.3
Oil and Gas Extraction	28.7	28.1	29.3	2.1	- 2.1
Contract Construction	86.4	83.0	81.7	4.1	5.8
Manufacturing	179.7	177.3	184.0	1.4	- 2.3
Lumber, Wood Products, and Furniture	6.8	6.6	6.5	3.0	4.6
Stone, Clay, Glass, and Concrete Products	9.7	9.5	10.9	2.1	-11.0
Primary and Fabricated Metals	14.4	14.5	16.9	- 0.7	-14.8
Machinery, Except Electrical	25.0	24.6	26.2	1.6	- 4.6
Electric and Electronic Equipment	17.5	17.2	16.8	1.7	4.2
Transportation Equipment	13.7	13.7	14.4	0.0	- 4.9
Other Durable Goods	28.0	27.6	28.3	1.5	- 1.1
Food and Kindred Products	23.5	23.0	23.8	2.2	- 1.3
Textiles and Apparel	3.3	3.1	3.2	6.5	3.1
Paper and Allied Products	2.0	2.0	2.0	0.0	0.0
Printing and Publishing	19.0	18.9	18.5	0.5	2.7
Chemicals and Allied Products	7.9	7.8	7.5	1.3	5.3
Other Nondurable Goods	8.8	8.7	9.0	1.2	- 2.2
Finance, Insurance, and Real Estate	87.0	86.0	83.8	1.2	3.8
Banking	21.3	21.3	21.6	0.0	- 1.4
Credit Agencies Other than Banks	13.3	13.3	12.7	0.0	4.7
Insurance Carriers, Agents, and Brokers	20.6	20.6	20.3	0.0	1.5
Real Estate and Combination Offices	23.3	22.5	22.0	3.6	5.9
Other Finance, Insurance, and Real Estate	8.5	8.3	7.1	2.4	19.7
Transportation and Public Utilities	84.5	83.4	85.7	1.3	- 1.4
Railroad Transportation	5.5	5.4	6.2	1.9	-11.3
Trucking and Warehousing	17.0	16.6	16.9	2.4	0.6
Air Transportation	15.0	14.6	14.0	2.7	7.1
Other Transportation	6.4	6.3	6.6	1.6	- 3.0
Communications, Electric, Gas, and Sanitary Services	40.5	40.4	42.0	0.3	- 3.6
Trade	330.3	327.1	321.4	1.0	2.8
Wholesale Trade	81.5	81.0	81.5	0.6	0.0
Retail Trade	248.8	246.1	239.8	1.1	3.8
Services	293.3	282.9	281.4	3.7	4.2
Lodging and Combination Lodging/Eating Places	26.6	24.7	25.6	7.7	3.9
Personal Services	15.1	15.0	14.2	0.7	6.3
Business Services	57.3	55.0	52.4	4.2	9.4
Auto and Miscellaneous Repair Services	14.6	14.4	14.1	1.4	3.6
Amusements and Recreation	20.8	16.9	18.8	23.1	10.6
Health Services	73.7	73.3	72.4	0.6	1.8
Educational Services	10.3	10.9	9.6	- 5.5	7.3
Membership Organizations	20.4	19.9	20.6	2.5	- 1.0
Other Services	54.5	52.8	53.7	3.2	1.5
Government	242.7	247.4	238.2	- 1.9	1.9
Federal	53.5	52.1	51.6	2.7	3.7
State	51.3	58.2	50.6	-11.9	1.4
Local	137.9	137.1	136.0	0.6	1.4

	June 1983	May 1983	June 1982	Percent Change June 1983 from May 1983	Percent Change June 1983 from June 1982
Average Weekly Hours					
Construction	38.5	36.8	38.3	4.6	0.5
Manufacturing	40.1	39.6	39.1	1.3	2.6
Durable Goods	40.6	40.2	39.6	1.0	2.5
Nondurable Goods	39.3	38.6	38.4	1.8	2.3
Average Weekly Earnings ($)					
Construction	509.74	497.54	502.88	2.5	1.4
Manufacturing	364.91	358.78	337.04	1.7	8.3
Durable Goods	373.11	369.84	347.69	0.9	7.3
Nondurable Goods	352.52	341.22	321.02	3.3	9.8
Initial Unemployment Claims (000)	16.0	16.5	18.9	- 3.0	-15.3
Bankruptcies, All Types (number)	500	541	550	- 7.6	- 9.1
Total State Revenue ($000)	687,042	324,537	499,876	111.7	37.4
Total State Expenditures ($000)	511,568	370,286	473,652	38.2	8.0
Crude Oil Production (thous. bbls.)	2,321	2,400	2,621	- 3.3	-11.5
Dry Gas Production (mil. cu. ft.)	7,310	8,515	11,868	-14.2	-38.4
Coal Production	1,400.1	1,465.7	1,533.8	- 4.5	- 8.7
New Oil and Gas Wells (number)	144	126	164	14.3	-12.2
Natural Gas Used (bil. cu. ft.)	6.7	11.1	7.2	-39.6	- 6.9
Electrical Power Sales (mil. kwh)					
Residential	474.7	509.1	440.3	- 6.8	7.8
Nonresidential	992.1	923.3	980.0	7.5	1.2
New Construction, 122 places					
Residential permits (number)	3,401	3,323	1,623	2.4	109.6
Residential value ($000)	217,065	213,472	110,252	1.7	96.9
Nonresidential permits (number)	359	323	359	11.2	0.0
Nonresidential value ($000)	105,087	96,098	70,283	9.4	49.5
Highway Contractor Payments ($000)	10,929	9,325	10,063	17.2	8.6
Savings and Loan Net New Savings ($000)[b]	-40,300	38,300	-41,900	—	—
National Park Recreational Visits—10 Areas (000)[b]	863.4	367.8	824.0	134.8	4.8
Motor Vehicle Title Applications (000)	90.0	88.4	86.6	1.8	3.9
Highway Vehicle Traffic Counts at Border Stations (daily average)	49,039	39,221	49,632	25.0	- 1.2
Air Passengers, Stapleton (000)[c]	2,362	1,986	2,325	18.9	1.6
Air Freight and Air Express, Stapleton (thous. lbs.)	25,925	24,957	27,164	3.9	- 4.6
Prices Received by Farmers ($)					
Beef Cattle (per cwt)	64.40	66.10	68.10	- 2.6	- 5.4
Lambs (per cwt)	56.00	59.60	61.40	- 6.0	- 8.8
Wheat (per bu.)	3.36	3.50	3.41r	- 4.0	- 1.5
Corn (per bu.)	3.35	3.15	2.79	6.4	20.1
Potatoes (per cwt)	4.25	4.65	5.10r	- 8.6	-16.7
Wool (per lb.)	.55	.55	.79r	0.0	-30.4

NOTES: An asterisk (*) indicates preliminary data subject to revision.
Revised data are marked (r).
n.r.—not reported.

[a] Employment figures have been updated to a December 1981 benchmark and are arranged by 1972 Standard Industrial Classifications (SIC). Previously reported data were on a March 1981 benchmark. Thus, these data are not comparable to that published prior.

[b] New series, thus figures are not comparable to those previously published.

[c] Includes scheduled airlines, commuter airlines, and charter passengers.

Employment, Hours, and Earnings data from Colorado Department of Labor and Employment.
Bankruptcies from the Office of the Federal Referee in Bankruptcy.
State Revenue and Expenditures from the State Controller's Office.
Crude Oil Production, Dry Gas Production and New Oil and Gas Wells from the Oil and Gas Conservation Commission.
Coal Production from Colorado State Coal Mine Inspection Department.
Natural Gas Used from Colorado Interstate Gas Company.
Electrical Power Sales from 17 individual companies.
New Construction from Bureau of the Census, U.S. Department of Commerce.
Highway Contractor Payments from the Colorado Highway Department.
Life Insurance Sales from the Life Insurance Marketing and Research Association, Inc.
Savings and Loan Net New Savings from Federal Home Loan Bank of Topeka.
Recreational Visits from National Park Service, Denver.
Highway Traffic counts from Colorado Highway Department.
Air Passengers, Freight, and Express from Stapleton International Airport Business Office.
Prices Received by Farmers from U.S. Department of Agriculture.

LOCAL BUSINESS CONDITIONS
(All Figures in Thousands)

	June 1983	May 1983	June 1982
ALAMOSA (1982 pop. 7,182)			
Electric Power (kwh)	3,656	2,990	2,686
Constr. ($)—Res.	0	373	96
—Nonres.	0	0	15
Deposits ($) (2 of 2 banks)	51,315	52,734	46,105
ARVADA (1982 pop. 91,262)			
Electric Power (kwh)	25,079	27,342	24,673
Constr. ($)—Res.	7,183	3,902	882
—Nonres.	849	0	463
Deposits ($) (4 of 5 banks)	107,802	114,792	86,462
ASPEN (1982 pop. 4,081)			
Electric Power (kwh)	n.a.	3,243	2,302
Constr. ($)—Res.	500	525	0
—Nonres.	1,865	0	0
Deposits ($) (2 of 3 banks)	78,295	75,222	75,765
AURORA (1982 pop. 178,665)			
Electric Power (kwh)	77,792	83,667	72,336
Constr. ($)—Res.	25,399	30,720	11,077
—Nonres.	4,066	4,673	5,938
Deposits ($) (10 of 14 banks)	264,099	268,570	199,934
BOULDER (1982 pop. 80,651)			
Electric Power (kwh)	51,959	55,404	48,060
Constr. ($)—Res.	4,460	2,479	3,446
—Nonres.	3,209	1,211	4,065
Deposits ($) (10 of 10 banks)	552,263	562,674r	445,512
BRIGHTON (1982 pop. 13,239)			
Electric Power (kwh)	4,757	4,632	4,519
Constr. ($)—Res.	214	60	36
—Nonres.	129	172	76
Deposits ($) (2 of 2 banks)	59,048	60,943	54,488
BROOMFIELD (1982 pop. 22,452)			
Electric Power (kwh)	9,985	8,537	9,858
Constr. ($)—Res.	687	575	129
—Nonres.	5,017	0	293
Deposits ($) (2 of 2 banks)	60,211	60,902	49,875
CANON CITY (1982 pop. 13,576)			
Electric Power (kwh)	25,000	22,643	23,321
Constr. ($)—Res.	114	108	30
—Nonres.	0	72	56
Deposits ($) (3 of 3 banks)	108,121	108,588	104,001
COLORADO SPRINGS (1982 pop. 230,553)			
Electric Power (kwh)	153,704	158,001	144,905
Constr. ($)—Res.	31,358	30,153	9,857
—Nonres.	13,019	9,458	27,813
Deposits ($) (17 of 20 banks)	981,800*	1,016,896	878,937
COMMERCE CITY (1982 pop. 16,412)			
Electric Power (kwh)	33,359	18,891	24,093
Constr. ($)—Res.	55	33	539
—Nonres.	100	716	0
Deposits ($) (1 of 1 bank)	26,800	28,862	24,629
CORTEZ (1982 pop. 7,489)			
Electric Power (kwh)	3,347	3,435	3,324
Constr. ($)—Res.	0	255	979
—Nonres.	215	16	0
Deposits ($) (3 of 3 banks)	91,448	96,871	77,354
CRAIG (1982 pop. 10,000)			
Electric Power (kwh)	4,015	4,342	4,867
Constr. ($)—Res.	88	0	115
—Nonres.	0	0	1,146
Deposits ($) (2 of 2 banks)	61,902	63,348	65,368
DENVER (1982 pop. 500,600)			
Electric Power (kwh)	318,601	323,335	309,237
Constr. ($)—Res.	15,857	19,706	9,274
—Nonres.	38,958	51,628	1,215
Deposits ($) (40 of 45 banks)	7,261,174	7,338,063	6,271,185
DURANGO (1982 pop. 12,276)			
Electric Power (kwh)	5,306	6,269	5,842
Constr. ($)—Res.	304	369	287
—Nonres.	200	0	23
Deposits ($) (3 of 3 banks)	129,527	135,094	113,526
ENGLEWOOD (1982 pop. 30,555)			
Electric Power (kwh)	20,109	19,137	18,474
Constr. ($)—Res.	472	3,268	233
—Nonres.	209	0	969
Deposits ($) (7 of 12 banks)	394,817	405,351	335,550
ESTES PARK (1982 pop. 2,934)			
Electric Power (kwh)	4,818	4,395	4,490
Constr. ($)—Res.	393	284	273
—Nonres.	136	0	0
Deposits ($) (2 of 2 banks)	40,802	39,289	34,030
FORT COLLINS (1982 pop. 68,307)			
Electric Power (kwh)	39,713	41,349	37,393
Constr. ($)—Res.	5,872	5,709	659
—Nonres.	2,170	2,517	10,978
Deposits ($) (8 of 8 banks)	415,591	429,073	343,976
FORT MORGAN (1982 pop. 8,913)			
Electric Power (kwh)	7,015	6,177	6,789
Constr. ($)—Res.	n.r.	167	0
—Nonres.	n.r.	0	5
Deposits ($) (3 of 3 banks)	96,362	97,947	86,469
GLENWOOD SPRINGS (1982 pop. 5,000)			
Electric Power (kwh)	4,689	4,686	4,572
Constr. ($)—Res.	120	0	219
—Nonres.	0	216	3,979
Deposits ($) (3 of 3 banks)	122,877	127,536	112,372
GOLDEN (1982 pop. 13,109)			
Electric Power (kwh)	5,487	5,635	7,279
Constr. ($)—Res.	1,902	307	293
—Nonres.	711	0	61
Deposits ($) (3 of 3 banks)	155,269	156,053	135,850
GRAND JUNCTION (1982 pop. 32,082)			
Electric Power (kwh)	18,671	17,160	18,296
Constr. ($)—Res.	250	100	776
—Nonres.	2,229	378	336
Deposits ($) (5 of 5 banks)	345,624	355,459	348,620
GREELEY (1982 pop. 54,063)			
Electric Power (kwh)	25,691	23,919	23,919
Constr. ($)—Res.	1,427	1,451	579
—Nonres.	61	134	9,856
Deposits ($) (9 of 9 banks)	478,495	477,168	410,858
GUNNISON (1982 pop. 6,031)			
Electric Power (kwh)	3,043	3,579	3,005
Constr. ($)—Res.	0	31	0
—Nonres.	36	0	58
Deposits ($) (2 of 2 banks)	47,776	49,703	42,875
LA JUNTA (1982 pop. 8,338)			
Electric Power (kwh)	4,670	4,709	4,223
Constr. ($)—Res.	0	83	168
—Nonres.	0	0	23
Deposits ($) (2 of 2 banks)	53,546	55,386	46,569

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LOCAL BUSINESS CONDITIONS—Continued

	June 1983	May 1983	June 1982
LAFAYETTE (1982 pop. 10,115)			
Electric Power (kwh)	2,558	2,540	2,293
Constr. ($)—Res.	641	805	994
—Nonres.	0	250	0
Deposits ($) (1 of 1 bank)	16,874	16,869	15,879
LAKEWOOD (1982 pop. 117,436)			
Electric Power (kwh)	59,594	50,414	49,546
Constr. ($)—Res.	7,283	9,969	5,135
—Nonres.	160	0	11,468
Deposits ($) (12 of 12 banks)	583,599	565,455	482,168
LAMAR (1982 pop. 7,793)			
Electric Power (kwh)	5,280	5,001	5,884
Constr. ($)—Res.	84	54	48
—Nonres.	38	25	140
Deposits ($) (2 of 2 banks)	82,356	82,805	66,313
LITTLETON (1982 pop. 30,001)			
Electric Power (kwh)	15,896	15,123	14,400
Constr. ($)—Res.	3,934	1,700	3,272
—Nonres.	364	3,728	5,992
Deposits ($) (9 of 11 banks)	233,058	244,824	184,956
LONGMONT (1982 pop. 46,313)			
Electric Power (kwh)	21,512	22,102	18,671
Constr. ($)—Res.	3,770	2,185	1,764
—Nonres.	1,720	697	970
Deposits ($) (5 of 5 banks)	209,056	211,723	171,508
LOUISVILLE (1982 pop. 6,067)			
Electric Power (kwh)	10,061	10,116	8,183
Constr. ($)—Res.	6,417	2,187	1,091
—Nonres.	0	299	1,267
Deposits ($) (2 of 2 banks)	25,526	26,672	17,414
LOVELAND (1982 pop. 30,962)			
Electric Power (kwh)	20,105	20,158	15,468
Constr. ($)—Res.	1,638	1,966	954
—Nonres.	125	106	130
Deposits ($) (4 of 4 banks)	148,285	151,373	127,495
MONTROSE (1982 pop. 8,895)[b]			
Constr. ($)—Res.	197	353	125
—Nonres.	180	90	0
Deposits ($) (3 of 3 banks)	108,581	112,030	103,454
NORTHGLENN (1982 pop. 30,980)			
Electric Power (kwh)	9,924	10,157	9,558
Constr. ($)—Res.	0	0	0
—Nonres.	741	3,502	0
Deposits ($) (2 of 3 banks)	68,825	71,800	58,560
PUEBLO (1982 pop. 99,619)			
Electric Power (kwh)	45,676	45,733	45,597
Constr. ($)—Res.	435	436	528
—Nonres.	1,095	299	135
Deposits ($) (8 of 9 banks)	393,570	394,524	345,353
ROCKY FORD (1982 pop. 4,574)			
Electric Power (kwh)	4,853	4,360	5,028
Constr. ($)—Res.	0	0	0
—Nonres.	11	15	0
Deposits ($) (1 of 2 banks)	13,587	14,003	13,652
SALIDA (1982 pop. 4,478)			
Electric Power (kwh)	1,568	2,293	1,543
Constr. ($)—Res.	0	0	0
—Nonres.	0	0	2,919
Deposits ($) (2 of 2 banks)	43,634	45,705	39,041
STERLING (1982 pop. 11,470)			
Electric Power (kwh)	5,344	5,473	5,510
Constr. ($)—Res.	53	0	12
—Nonres.	771	0	0
Deposits ($) (3 of 3 banks)	146,019	143,345	135,118
THORNTON (1982 pop. 44,130)			
Electric Power (kwh)	15,856	15,904	14,376
Constr. ($)—Res.	2,642	2,655	338
—Nonres.	1,250	4,372	945
Deposits ($) (1 of 1 bank)	26,744	26,499	24,526
TRINIDAD (1982 pop. 9,900)			
Electric Power (kwh)	2,727	2,790	2,717
Constr. ($)—Res.	0	0	0
—Nonres.	0	0	80
Deposits ($) (2 of 2 banks)	55,880	56,155	51,568
WESTMINSTER (1982 pop. 54,995)			
Electric Power (kwh)	23,786	21,112	18,555
Constr. ($)—Res.	5,430	8,296	2,482
—Nonres.	4,200	3,582	45
Deposits ($) (3 of 3 banks)	98,993	99,767	84,714
WHEAT RIDGE (1982 pop. 31,743)			
Electric Power (kwh)	21,342	22,143	19,674
Constr. ($)—Res.	1,316	0	2,618
—Nonres.	3,832	1,843	207
Deposits ($) (2 of 2 banks)	91,697	91,687	70,363

[a] Regional figures.
[b] Electric Power consumption figures are not available.

NOTES: Population figures are preliminary 1982 estimates by the Demographic Section, Colorado Division of Local Government.
Construction figures are valuation of new residential and nonresidential construction only.
Deposit figures are total deposits in commercial banks as of last day of month.
n.r.—not reported
*—preliminary data
r—revised data